

IS6421: HUMAN-COMPUTER INTERACTION AND MULTIMEDIA

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Human-Computer Interaction and Multimedia

Subject Code

IS - Information Systems

Course Number

6421

Academic Unit

Information Systems (IS)

College/School

College of Business (CB)

Course Duration

One Semester

Credit Units

3

Level

P5, P6 - Postgraduate Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

IS6424 Human-Computer Interaction and Multimedia

Exclusive Courses

Nil

Part II Course Details

Abstract

This course aims to

- enable students to foster a strong sense of curiosity and appreciate the interactions between computer technology and people, business and society generally and understand HCI foundations, such as the human, the computer, and the interaction;
- enable students to understand issues of HCI design, such as usability, the design process, models of the user, requirement analysis methods, implementation, implementation-support, and evaluation techniques; and give students an enduring capability to participate in analysis, design, and development work in HCI;
- expose students to interdisciplinary perspectives of Human-Computer Interaction and obtain experience in applying academic knowledge to solve practical design and implementation issues;
- enable students to understand multimedia fundamentals and new emerging trends and incorporate them in the design and development of creative products or applications.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the concepts of cognitive science and the physiology of human perception and the importance of these disciplines to HCI design and implementation for information systems.	25	x		
2	Apply the principles of sustainable HCI design, evaluation, and implementation that meets user requirements.	25		x	x
3	Utilise HCI approaches to plan, design, and develop multimedia projects.	20		x	x
4	Analyse different options to recommend the best suitable approach of HCI formulation and solution.	30	x	x	

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Students will learn the concepts of HCI and associated design and developments techniques. Focus will be on the HCI design and development that enhances the efficiency, safety, functionality, usability and the aesthetic appeal of the user experience with information systems at the interface between the user and the technology - that is the development of technologies and tools, which aid the human mind (cognitive artifacts). Topics to be covered include: cognitive psychology, the computer constraints to interaction, interaction models, usability principles and engineering, requirement analysis methods, evaluation and implementation aspects of technology, lab and field experiment methodologies, HCI application of Human-Multimedia (Computer) interaction, web building techniques, and emerging technologies such as immersive technologies	1, 2, 3, 4	

2	Laboratory	<p>Students will spend time to reinforce and practice various modelling and design techniques learnt in lectures through the following activities during the laboratory sessions:</p> <ul style="list-style-type: none"> - Exercises: Hands-on activities using different tools such as HTML, CSS, and JavaScript to implement HCI principles into HCI design. A CASE tool as part of systems modelling exercises such as requirement gathering using interviews, questionnaires, Use Case models, functional models, structural models and behavioural models, will be employed in the exercise. Hands-on activities using a design tool for demonstrating window-based interface design. - Case Study: Discussion on implications of various concepts learnt in lectures, and how they can be applied to a typical HCI environment. Discussion, critique and selection among different approaches of requirement analysis, HTA and scenario analysis, and heuristics evaluation, as well as suggestion for improvement on above issues. - Presentations: Students will make presentations of their team project, and other teams and the instructor will participate in discussion and offer suggestions for improvements. 	1, 2, 3, 4	
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3	Project	Students would have to complete a group project requiring them to perform a particular HCI product requirement analysis, design, and development by employing HCI analysis and usability principles, and web building techniques. Each team is also required to evaluate a peer-team's work by using heuristics evaluation method and provide improvement comments. The group project work will be submitted at two different phases for the instructor/tutors and cross-group review and comments.	1, 2, 3, 4	
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Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks ("- for nil entry)	Allow Use of GenAI?	
1	Continuous Assessment Participation in class and lab sessions in activities such as: - Commitment in lab discussion to comment on other students' work or to elaborate their own interpretation; - Engagement in lecture interaction on understanding and interpretation of the knowledge on HCI concepts and principles; - Participation in lab hands-on activities to apply the HCI principles learnt from lectures to their exercises.	1, 2, 3, 4	20	-	Yes

2	<p>Project</p> <p>Each team of 4 or 5 students will analyse collect and structure requirements of a proposed HCI design. Each team needs to analyse the user requirements, design requirements using appropriate techniques, particularly using PACT and design usability principles, and develop the design using HTML, CSS, and JavaScript. The project work should be completed in two phases:</p> <p>Phase I - Design a proposed HCI product: propose a HCI oriented product and collect and analyse user requirements; conduct PACT and design usability principle analysis; and design and develop the proposed product to demonstrate the proposed functions; and then write it up and submit the work.</p> <p>Phase II - Evaluate a peer-team design: collect the peer team's phase I submission; evaluate their design by using heuristics evaluation method, which focusing on usability design and PACT analysis; claim the evaluation results; and provide recommendations. The</p>	1, 2, 3, 4	40	-	Yes
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Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

2

Minimum Continuous Assessment Passing Requirement (%)

30

Minimum Examination Passing Requirement (%)

20

Additional Information for ATs

Exam

This examination will assess the conceptual understanding, modelling skills, and web building techniques using small e-business scenarios.

Note: Students must pass BOTH coursework and examination in order to secure an overall pass in this course.

Assessment Rubrics (AR)

Assessment Task

AT1: Continuous Assessment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to explain the concepts of cognitive science and the physiology of human perception and the importance of these disciplines to HCI design for information systems.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

AT1: Continuous Assessment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Capability to apply the principles of sustainable HCI design, development, and evaluation that meets user requirements.

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Capability to utilise HCI approaches to plan, design, and develop multimedia projects.

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Assessment Task

AT1: Continuous Assessment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to analyse different options to recommend the best suitable approach of HCI formulation and solution.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

AT2: Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to explain the concepts of cognitive science and the physiology of human perception and the importance of these disciplines to HCI design for information systems.

Excellent

(A+, A, A-) High

Good

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Assessment Task

AT3: Exam (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to explain the concepts of cognitive science and the physiology of human perception and the importance of these disciplines to HCI design for information systems.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

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Assessment Task

AT3: Exam (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Capability to apply the principles of sustainable HCI design, develop, and/or evaluation that meets user requirements.

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Part III Other Information

Keyword Syllabus

HCI (Human Computer Interaction), Design usability principles, Usability engineering, PACT (People, Activities, Contexts and Technologies), Multimedia

Detailed Syllabus

HCI introduction

The human factors

Interaction and PACT model

Usability principles and engineering

Design process

Requirements analysis

Scenarios and task analysis

Implementation techniques & support

Evaluation techniques

Lab and field experiment methodologies

Multimedia fundamentals

Immersive technologies
Documentation
Web design
HTML, CSS, JavaScript

Reading List

Compulsory Readings

Title	
1	Shneiderman et al., Designing the User Interface: Strategies for Effective Human-Computer Interaction, 6th Edition, 2017. Global Edition, ISBN: 9781292153926.

Additional Readings

Title	
1	David Benyon, Designing User Experience: A guide to HCI, UX and interaction design, 4th edition, Pearson, 2019.
2	Patrick M. Carey, New Perspectives on HTML5, CSS3, and JavaScript, 6th Edition, 2017
3	Vaughan T, Multimedia: Making It Work, 9th edition, McGraw-Hill Education, 2014.
4	Online Resources
5	www.w3schools.com